UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,482	09/28/2001	Ye Wang	04770.00023	6453

22907	7590	12/20/2004

BANNER & WITCOFF
1001 G STREET N W
SUITE 1100
WASHINGTON, DC 20001

EXAMINER
JACKSON, JAKIEDA R

ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 12/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/966,482	WANG ET AL.
	Examiner	Art Unit
	Jakieda R Jackson	2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-17* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) *8,11,14 and 15* is/are allowed.

6) ☒ Claim(s) *1-7, 9-10, 12-13 and 16-17* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *28 September 2001* is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Drawings

1.   In response to the drawings filed September 28, 2001, new corrected drawings in
compliance with 37 CFR 1.121(d) are required in this application because the drawings
are informal (e.g. figures 1 and 2, handwritten information is not legible). Applicant is
advised to employ the services of a competent patent draftsperson outside the Office,
as the U.S. Patent and Trademark Office no longer prepares new drawings. The
corrected drawings are required in reply to the Office action to avoid abandonment of
the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that
form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by
> another filed in the United States before the invention by the applicant for patent or (2) a patent
> granted on an application for patent by another filed in the United States before the invention by the
> applicant for patent, except that an international application filed under the treaty defined in section
> 351(a) shall have the effects for purposes of this subsection of an application filed in the United States
> only if the international application designated the United States and was published under Article 21(2)
> of such treaty in the English language.

3.   **Claims 13 and 16-17** are rejected under 35 U.S.C. 102(e) as being anticipated
by Kondo (U.S. Patent No. 6,141,637).

Regarding **claim 13**, Kondo discloses a beat detector suitable for placement into an audio device conforming to a compression-encoded audio transmission protocol, said beat detector comprising:

a modified discrete cosine transform coefficient extractor (figure 1, element 1), for obtaining transform coefficients (column 6, lines 31-41);

at least one band feature value analyzer (figure 1, element 2) for analyzing a feature value for a related band (column 6, lines 31-41);

a confidence score calculator (figure 1, element 3, 5 and 7 with column 7, lines 2-3); and

a converging (figure 2, element 24) and storage unit (column 10, lines 5-11) for combining two or more said analyzed band feature values (column 8, lines 1-5).

Regarding **claim 16**, Kondo discloses an audio encoder suitable for use with a compression-encoded audio transmission protocol, said audio encoder comprising:

a beat detector including a modified discrete cosine transform coefficient extractor (figure 1, element 1), for obtaining transform coefficients (column 6, lines 31-41);

at least one band feature value analyzer (figure 1, element 2) for analyzing a feature value for a related band (column 6, lines 31-41);

a confidence score calculator (figure 1, element 3, 5 and 7 with column 7, lines 2-3); and

means for including beat detection information (distinct pitch or fundamental tone) as side information in audio transmission (column 9, lines 6-17).

Regarding **claim 17**, discloses an audio decoder suitable for use with a compression-encoded audio transmission protocol, said audio decoder comprising:

a beat detector for providing beat position information (distinct pitch or fundamental tone; column 9, lines 6-17), said beat detector including a modified discrete cosine transform coefficient extractor (figure 1, element 1), for obtaining transform coefficients (column 6, lines 31-41);

at least one band feature value analyzer (figure 1, element 2) for analyzing a feature value for a related band (column 6, lines 31-41);

a confidence score calculator (figure 1, element 3, 5 and 7 with column 7, lines 2-3); and

error concealment means for concealing packet loss in audio transmission by utilizing said beat position to identify audio data for replacement of packet loss (error determined; column 9, lines 6-17).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   **Claim 1** is rejected under 35 U.S.C. 103(a) as being unpatentable over Marx (U.S. Patent No. 6,175,632) in view of Kondo.

Regarding **claim 1**, Marx discloses a method for detecting beats in a

compression encoded audio bitstream, said method comprising the steps of:

deriving a search window-switching pattern (figures 2-6) from the audio bitstream

(column 6, lines 9-18);

determining a window-switching beat position using said search window-

switching pattern (figures 2-6);

comparing (compares) said baseline beat position with said window-switching

beat position (column 7, line 66 – column 8, line 9); and

validating said window-switching beat position as a detected beat if a

predetermined condition is satisfied (column 7, line 66 – column 8, line 9), but lacks

determining a baseline beat position using modified discrete cosine transform

coefficients obtained from the audio bitstream;

Kondo disclose a speech coding system determining a baseline beat position

using modified discrete cosine transform coefficients (column 8, lines 1-25) obtained

from the audio bitstream (column 9, lines 7-10), to transform the samples into samples

in the frequency domain.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Marx's method to determine beat position using

MDCT coefficients, to transform the samples into samples in the frequency domain, to

obtain MDCT coefficients (column 6, lines 31-46)

6.   **Claims 2-3** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Marx in view of Kondo, as applied to claim 1, in further view of Pougatchev et al. (U.S.

Patent No. 6,305,943), hereinafter referenced as Pougatchev.

Regarding **claim 2**, Marx in view of Kondo discloses a method for detecting

beats, but lacks further comprising the step of determining an inter-beat interval related

to said baseline beat position.

Pougatchev discloses a training system further comprising the step of

determining an inter-beat interval (IBI) related to said baseline beat position (baseline;

column 3, line 45 – column 4, line 20), to estimate the rate.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Marx in combination with Kondo's method

wherein it determines an inter-beat interval related to said baseline beat position, to

allow for a very individualized automatic threshold selection provided for training and

simplicity and to evaluate a startup rate, to induce a pattern (column 4, lines 1-20).

Regarding **claim 3**, Marx in view of Kondo discloses a method for detecting

beats, but lacks further comprising the step of storing said window-switching beat

position and said inter-beat interval for subsequent retrieval.

Pougatchev discloses a training system comprising the step of storing said

window-switching beat position (power spectrum graph) and said inter-beat interval for

subsequent retrieval (interbeat intervals; column 6, lines 1-9), to reflect a measure of

similarity between the two processes.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Marx in combination with Kondo's method

wherein it stores window-switching beat position and said inter-beat interval for

subsequent retrieval, to be able to dynamically evaluate a quantitative measure of the

significance and stability of the resonant pattern and establish feedback to reinforce the

positive changes.

7.   **Claims 4-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Marx in view of Kondo, as applied to claim 1, in further view of Marrin et al. (U.S. Patent

No. 5,875,257), hereinafter referenced as Marrin.

Regarding **claim 4**, Marx in view of Kondo discloses a method for detecting

beats, but lacks wherein said step of determining a baseline beat position comprises

the step of determining at least one beat candidate and an inter-onset interval.

Marrin discloses an apparatus for controlling behavior wherein said step of

determining a baseline beat position comprises the step of determining at least one

beat candidate (successive beat) and an inter-onset interval (interonset interval;

column 6, lines 43-50), to determine the number of beats per time period.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Marx in combination with Kondo's method

wherein said step of determining a baseline beat position comprises the step of

determining at least one beat candidate and an inter-onset interval, to facilitate

continuous sensing of parameters that are believed to be critical in music conducting (column 2, lines30-50).

Regarding **claim 5**, Marx discloses a method wherein said step of determining a baseline beat position further comprises the step of checking said at least one beat candidate for reliability using a predetermined confidence threshold value (best fit; column 8, lines 55-61).

8.   **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Marx in view of Kondo, as applied to claim 1, in further view of well known prior art.

Regarding **claim 6**, Marx in view of Kondo discloses a method for detecting beats, but lacks further comprising the step of converging two or more said beat candidates to a single beat candidate.

However, the examiner takes Official Notice that converging two or more beat candidates to a single beat candidate is old and well known in the art of speech processing and therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to converge two or more beats into a single candidate, to provide an ensemble average and to provide sufficient statistical data

9.   **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Marx in view of Kondo, as applied to claim 1, in further view of de Queiroz (U.S. Patent No. 6,738,524).

Regarding **claim 7**, Marx in view of Kondo discloses a method for detecting beats, but lacks wherein said step of deriving baseline beat information from the audio bitstream comprises the step of deriving an energy value for at least one subband from the compression encoded audio bitstream.

de Queiroz discloses a halftone detection system wherein said step of deriving baseline beat information from the audio bitstream comprises the step of deriving an energy value (energy) for at least one subband (sub-band) from the compression encoded audio bitstream (column 3, lines 35-54 with column 4, lines 4-26 and lines 47-57), to determine if the energy of the sub-band has decayed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Marx in combination with Kondo's method wherein said step of deriving baseline beat information from the audio bitstream comprises the step of deriving an energy value for at least one subband from the compression encoded audio bitstream, to determine the energy value for sub-bands in a specific decomposition (column 1, lines 33-39).

10.   **Claims 9-10 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Marx in view of Kondo, as applied to claim 1, in further view of Phillips (U.S. Patent

No. 6,287,258).

Regarding **claim 9**, Kondo in view of Marx discloses a beat detection method,

but lacks wherein said step of deriving a beat position comprises the step of identifying

a maximum energy value within a search window.

Phillips discloses a suppression method wherein said step of deriving a beat

position comprises the step of identifying a maximum energy value (energy parameter

above) within a search window (threshold; column 5, lines 11-15), to successfully

eliminate contaminated parameters.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Kondo in combination with Marx's method

wherein said step of deriving a beat position comprises the step of identifying a

maximum energy value within a search window, so it is known when to replace the with

previous energy (column 5, lines 11-15).

Regarding **claim 10**, Kondo in view of Marx discloses a beat detection method,

but lacks wherein said step of deriving an energy value for at least one subband

comprises the step of deriving an absolute energy value.

Phillips discloses a suppression method wherein said step of deriving an energy

value for at least one subband comprises the step of deriving an absolute energy value

(absolute energy or magnitude thresholding; column 1, lines 49-65), to successfully

eliminate contaminated parameters.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Kondo in combination with Marx's method

wherein said step of deriving an energy value for at least one subband comprises the

step of deriving an absolute energy value, to erroneously suppress valid flow (column

1, lines 60-65).

Regarding **claim 12**, Kondo in view of Marx discloses a beat detection method,

but lacks wherein said step of deriving an energy value for at least one subband

comprises the step of deriving a differential energy value.

Phillips discloses a suppression method wherein said step of deriving an energy

value for at least one subband comprises the step of deriving a differential energy

value (difference in energy level; column 8, lines 33-37), to successfully eliminate

contaminated parameters.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Kondo in combination with Marx's method

wherein said step of deriving an energy value for at least one subband comprises the

step of deriving a differential energy value, to avoid aliasing (column 8, lines 29-37).

Allowable Subject Matter

11.   **Claims 8, 11 and 14-15** would be allowable to include all of the limitations of the
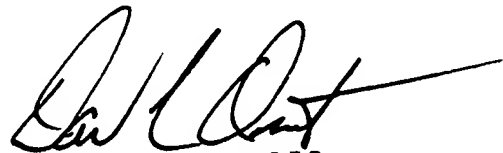
base claim and any intervening claims.

Conclusion

12.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jakieda R Jackson whose telephone number is

703.305.5593. The examiner can normally be reached on Monday through Friday from

7:30 a.m. to 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Doris To can be reached on 703. 305.4827. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

JRJ
December 8, 2004

DAVID L. OMETZ
PRIMARY EXAMINER